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THE CANCER PROBLEM.

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New York.

There is in my opinion no more important problem before civilized countries today than that of cancer.

The frequency of the disease, the number of deaths resulting from it, of which deaths many could have been prevented by right treatment at the right time, raises the question: Are we as a profession using such knowledge as we have in regard to cancer to the best advantage in the interest of the public? Is it possible for us to diminish the high death rate from cancer? It is my opinion that we are not doing all that we should do—that the cancer death rate can be lowered and that we as a profession are to blame if we do not do for the public all that we are able to do. The object of this paper is to give you my ideas of the ways by which the cancer mortality can be lowered.

Frequency: In the United States Registration Area there were in 1912 over 46,000 deaths recorded from cancer of different organs. In the same proportion in the entire United States there would have been approximately 75,000 deaths from cancer during the year. This was at the rate of one death from cancer in each 18 cases. This was about one-half the total number of deaths from tuberculosis.

Cancer under the age of 30 is relatively rare. If we consider only the cases that have passed the age of 30 years, there was one death from cancer to each 11.5 deaths from all causes. Let us bring these figures closer home. There were in the state of New York in 1912 106,000 deaths from all causes, of which 6,000, or 1 in 18, were from cancer. Of the cases beyond the age of 30 years there was one death from cancer to each 12 deaths from all causes. Of all deaths after the age of 30 years, one male in 14 and one female in 8 was the result of a malignant growth. After the age of 30 years there are more deaths from cancer than from tuberculosis.

There is another point to be noted in regard to cancer deaths. They occur at an age when the individual is of the greatest value to his family and to the community. The death of a child from tuberculosis or other cause is a distressing occurrence and it is not to be belittled, but the removal of that child is not as serious a matter to the family or to the community as the removal of the father or mother who are responsible for his support and care.

There is nothing new to you in these figures. They serve, however, to recall to you the great frequency of cancer as a cause of death and to support my belief that the reduction of the cancer mortality is one of the most important medical problems with which we have to deal.

Is cancer on the increase? There is no question that the percentage of deaths recorded from cancer is constantly increasing. For example: In England and Wales in 1840 the ratio of cancer deaths to the deaths from all causes, as reported by Williams, was 1 to 129; in 1905 it was 1 to 17. It is claimed by some observers that this indicates a definite increase in the frequency of cancer; others claim that the increase is apparent and not real, that there is a larger recorded death rate from cancer because of more correct diagnoses, that formerly many cases that died of cancer were not correctly diagnosed and were recorded as having died of some other disease. It is also urged that

as there are fewer deaths in childhood more people live to the cancer age. Unfortunately there are no statistics available with which to absolutely controvert these arguments. As a matter of fact, however, the physician of 50 years ago was a skilled observer of disease. He did not have the benefit of modern laboratory methods and could not make as early a diagnosis of a malignant condition as can be done today, but he could diagnose the terminal condition. He undoubtedly made some mistakes, but our modern pathologist is not infallible. Certainly so far as external cancer is concerned, such as cancer of the face, mouth, breast, uterus, etc., the terminal stage was diagnosed by the physician of 50 years ago too well for us to explain the increased recorded death rate from cancer of these organs by mistaken diagnosis. It must also be remembered that formerly lesions that were not cancer were sometimes diagnosed as such.

There is undoubted proof of a different kind of the increase of certain types of cancer. For example: It is known that cancer may develop as the result of X-ray burns. They did not have cancer resulting from X-ray burns 50 years ago because X-rays were not used. Again there is no doubt that ulcer of the stomach is more common now than formerly, due to modern ways of living and eating. There is no doubt that many cases of ulcer of the stomach are followed by and are the cause of cancer of the stomach. It is simple logic that cancer of the stomach is on the increase.

While it may not be possible to furnish mathematical proof that cancer is increasing, the evidence is such that there is little or no doubt that such is the case. This undoubted increase in the frequency of cancer is an additional factor in making the cancer problem one of the most important to the medical profession.

There are two ways by which this cancer problem is being attacked. One is in the laboratory and the other is clinical.

In nearly every civilized country there are one or more cancer research laboratories in which trained men are searching for the cause of cancer, hoping that with the discovery of this cause the disease can be prevented. There are two of these laboratories in this state. There is one in Buffalo under Dr. Gaylord and another in New York. The Crocker Cancer Research Laboratory, a part of Columbia University and under the direction of Dr. Wood. The work of these laboratories is of great value and is to be encouraged in every way. I will not, however, speak further in regard to them.

It is my wish to direct your attention to the possibilities of more aggressive action against cancer from the clinical side. To do this, I shall outline to you the work and aims of the American Society for the Control of Cancer and shall hope to enlist your aid in your own communities. This society was formed about three years ago and is distinctly of a national type and was established on the pattern of the National Society for the Study and Prevention of Tuberculosis. Our directors are located in all parts of the country, though there are more from New York than any other city. On that Board of Directors are laymen as well as physicians. It was obvious that work of the magnitude that was planned could not be carried out by physicians who were occupied with their own work. We secured, therefore, as our executive secretary, Mr. Curtis E. Lakeman, a layman who had previously been interested in public work, who does the work of the Society under the direction of the executive committee.

There are two main objects of this society, one is to obtain better statistics regarding cancer, the other is to give to the laity such information as we possess regarding cancer.

First, let me tell you what we have done towards obtaining better statistics on the subject of cancer. Those of you who are familiar with the reports of the Census Bureau on Vital Statistics will recall that the deaths from cancer have been recorded under seven headings. The statistics with this

classification are of little value. Under cancer of the buccal cavity were included cancer of the lip, cancer of the tongue, cancer of the cheek, cancer of the palate, cancer of the tonsil—all grouped under one heading. Obviously this gives us no information about the frequency of cancer in any one of these organs.

At the request of our society, the director of the census is making a more complete analysis of the cancer deaths for the year 1914, dividing cancer deaths into about thirty-five sections, instead of seven, as heretofore. Many thousands of personal letters have been written to physicians who have signed death certificates of patients dying of cancer, asking them for more complete information in regard to the primary location of the disease, whether operation was performed or not, whether the diagnosis was made from clinical symptoms, or from microscopic examination of tissue removed. Many of you have doubtless received these letters from the Census Bureau in Washington.

The result of this work will be statistics on cancer for the year 1914 in the United States that will be superior to any that we have ever previously had and which will compare favorably with those of England and Wales and the continental countries. We feel that we have accomplished a great deal in this one direction.

Another plan on which we are working is to obtain more uniform statistics on cancer of the various organs from hospitals. For this purpose we have had prepared history blanks for a number of the different organs, and it is our intention to induce various hospitals throughout the country to use these blanks, so that at the end of a period of years we will have some very definite statistics which will be of great value on account of their uniformity and the large number of cases reported.

The educational side of our work has necessitated very careful consideration. Some believe that the physician, both in the medical school and after graduation, should receive more careful instruction on the subject of cancer, and through him, his individual patients should be taught regarding the early symptoms and the necessity of immediate treatment for cancer. Others believe that we should go directly to the laity and teach them certain important things that they should know in regard to malignant disease.

Let us speak first regarding the so-called education of the physician. It is not right in my judgment to use the word "education" in this sense. There are few physicians who need further education regarding the symptoms of any of the ordinary cancers. It is not education that he needs. He needs to be stimulated so that he will not be careless or indifferent to the early symptoms of malignant disease. He should be made to feel this responsibility when a patient presenting symptoms which indicate the presence of cancer applies to him for advice. If a physician would use the same care regarding cases that present symptoms of early malignant disease that he does so as not to overlook acute appendicitis, there would be many more lives saved by the treatment of cancer.

Regarding the direct education of the laity, there was one objection raised to it, namely, that people would be unnecessarily alarmed, that many people who had no sign of cancer would be unhappy by the fear that they did have one. This objection could not be considered a strong one and has not influenced us in our work, though necessarily lectures on cancer before lay audiences must be carefully worded. A person never dies of the fear of cancer. Most people of intelligence will accept definite statements regarding cancer from their medical advisers and can be made to have less dread of the disease. We believe that there is also an indirect value in the education of the people regarding the symptoms of early cancer. It is that physicians will be more careful regarding their work if they know that the

patient may have some definite knowledge of the subject. This is well seen at the present time in the attitude of the public towards acute appendicitis. It is a serious matter for a physician in any community to overlook and lose a case of appendicitis without an operation. It should be equally serious for a physician to carry a case of cancer without recognition beyond the operable stage.

Let me now tell you how this educational work is being carried on by our society. Educational work obviously must be carried on locally. It is not possible for men in New York to educate people in the middle of Kansas or distant parts of the country. To obviate this difficulty and in order to cover the territory at a distance, we have formed a large number of local committees. We have, for example, such committees in Boston, Philadelphia, Baltimore, New Orleans, St. Louis, Michigan, Iowa, Denver and California and other states. As the opportunity arises more local committees will be formed. The Central Committee in New York stimulates and suggests to these local committees, these local committees in turn stimulate and suggest to their sub-committees and individual workers in their own territory. In this way we hope eventually to cover the entire country. Whenever possible we work with and try to obtain the cooperation of existing societies. For example: The various State and County Societies throughout the country have been urged to devote at least one meeting each year to the subject of cancer. This suggestion has been very favorably received and many medical meetings on the subject of cancer have been held as a result of it. In July a number of the medical journals devoted an important part of the number to the subject of cancer. In addition to these meetings for the profession we have had a large number of meetings for various lay bodies. Some of these meetings have been before audiences of over 1,500 people. It is our belief, however, that better results will be obtained at smaller expense by devoting lectures to smaller groups of men and women.

There are a number of associations that seem particularly suitable for cancer messages or talks. Among the first should be mentioned the various nurses' associations or clubs. A number of the training schools in New York City at our suggestion have had lectures on cancer incorporated in their regular teaching schedule. In addition to this at national meetings of nurses and before groups of graduate nurses, lectures on cancer have been given, and it is difficult to believe that good results have not been obtained in this way. Women's clubs throughout the country all seem to be ready to have lectures on the subject of cancer. This is another very suitable field. Another way in which information regarding the subject of cancer is placed before the public at small expense is through the Press Bulletin of the American Medical Association. It has very liberally cooperated with us. This press bulletin goes weekly to several thousand lay papers throughout the country and it contains a number of short articles on various medical subjects in addition to such articles as may appear on cancer. These articles have been used in whole or in part to a large extent and is a very economical way to get cancer facts before a large number of people. The State Board of Health in a number of states have given us very valuable assistance. In a number of states they have issued special health bulletins on the subject of cancer which have been widely circulated. The State Boards of Health are also giving us valuable assistance in obtaining better cancer statistics. It is in these various ways that we are trying to get cancer facts before the people of this country; believing if the people know the real, true facts in regard to cancer and certain simple warning signs of the most frequent varieties of cancer, that they will go more promptly to their physicians for medical advice, and that their physicians will see that they receive prompt

treatment for the relief of the malignant disease.

It may well be asked—just what facts we consider it wise to teach the public, and how it is possible to make people who have had no practical education understand so complicated a disease as many varieties of cancer are. I believe it is possible in the course of half an hour to remove from the minds of many people some mistaken ideas in regard to cancer, and to replace them with correct knowledge of the subject in general and also certain danger signs which should send the patient to his physician for examination and advice. There are four things on the subject of cancer about which the laity should be informed. Many of them have mistaken ideas about these four things, and if we can change this we will undoubtedly add to their peace of mind.

First: That cancer is a local disease. It is believed by many lay people that cancer is a constitutional disease; that it is a disease of the blood. This we know not to be true and we should lay particular stress on this point to them. They should be made to understand that at the start cancer is distinctly a local disease and that it involves no part of the body excepting the place of its origin, and that it is only at a later stage that it spreads to different parts of the body. In this connection also we must teach that it is during the period that it is still localized that there is the greatest chance of a permanent cure. We can put this still more strongly and state that if it is completely removed while it is still localized that it will be cured.

Another point on which the laity has a mistaken idea and one which it is very important to correct—is that cancer is a curable disease. Many people believe that cancer is incurable and because they believe it to be incurable they neglect treatment entirely or until it is too late. The medical profession is in part responsible for this mistaken belief in regard to the curability of cancer. We all know that the tendency of physicians is to conceal from the patient the fact that he has a cancer, even if an operation is done for its removal. It is also concealed from the community. If such a case is permanently cured neither the patient nor the community knows that a cancer was successfully removed. If, however, the case is not successful and a recurrence occurs the entire community knows both of the operations and of the recurrence of the growth. In other words, our successes are concealed, but our failures are advertised. There is in this plan a certain kindness to the individual, but it is the cause of a mistaken belief regarding the curability of cancer on the part of the laity. It is of the greatest importance that the laity understands correctly that cancer is a curable disease, but that it is curable only in the early stage, and therefore any delay is associated with a distinct failure.

Still another fact which is not understood correctly in regard to cancer by the laity is the influence of heredity. It is believed by many people that cancer is hereditary. Many people are apprehensive in regard to cancer because they know that one of their direct ancestors died of it. It is probable, as a rule, that heredity plays no direct influence in the development of a cancer. The frequency of cancer in families can better be explained by the matter of chance. We all have two parents and four grandparents—making six people in the two previous generations, and as one person in twelve beyond the age of thirty-five dies of cancer, on an average of two people one will have had a parent or a grandparent who died of some form of malignant disease. If the side lines, that is, brothers and sisters, uncles and aunts are considered, it is easy to appreciate that there are few who have not had a near relative who died of the disease.

A practical evidence against any influence of heredity on cancer is seen in the attitude of life insurance companies in regard to it. The statistics of life insurance companies have been made with great care and if they believed that there was any greater risk

in insuring a person with a cancer history they would not be willing to assume the risk for purely financial reasons. The statistics of life insurance companies have shown that there is no greater risk to the person having cancer because he has a cancer history. There is no doubt that we will add to the comfort of many people if we will inform them that heredity has no influence in the production of a cancer.

Another point on which people have a wrong idea is the question of contagion. We should teach that there is no evidence that cancer is contagious. There are throughout the country an enormous number of cancer cases which are being cared for by members of their family—people who have had no particular training to avoid contagion. Many of these people are anxious that they may contract the disease. Many experiments have been made in the attempt to transfer a cancer from one person to another. While this has been successful in animals, it has never been successful so far as I know in humans. We also know that there is no recorded case of a surgeon contracting a cancer from operating on a cancer patient, though there are a number of such operations performed daily in this country. It is fair to assume therefore that cancer is not contagious and we should teach this fact to the public.

These four facts, that cancer is a local disease at first, that it is a curable disease, that it is not hereditary, and that it is not contagious, are the most important general facts regarding cancer that the laity should know.

In regard to cancer of the special organs it is the belief of the members of our society that we should not attempt to teach the laity all the symptoms of any cancer. We should limit our work to teaching them certain danger signals which should send them at once to a physician for advice. For example: In regard to cancer of the breast, we believe that it is sufficient if we teach women that if they discover any lump in the breast that they should go at once to their physician for an examination. With intelligent women, this is the first symptom in nearly all of the cases, it is not necessary to go into other detailed symptoms which occur later in the disease. If we teach women this one symptom the responsibility then rests with the physician to whom she goes for advice.

In regard to cancer of the uterus, we believe that it is necessary only to teach them that any change in the discharge, or any change in the menstruation should be looked upon with suspicion and should send the patient at once to a physician for advice. It is necessary in giving this information to women to assure them that these are only danger signals, not that they mean that a cancer is always present, but that it is wise and it is necessary to go to a physician in order to positively exclude it.

In what way does the cancer problem concern you here in the Fourth District? The message to you is the same as that of physicians in other communities. You as physicians are justly held responsible for the public health of the communities in which you live. The cancer problem is a public-health problem just as much as typhoid fever and the various infectious diseases are public-health problems. In 1912 the last report which I had at hand, there were in the counties which compose the Fourth District 5,093 deaths from all causes. Of these 278 were due to cancer, that is, 1 in 18. I did not have the percentage of deaths if only those of the cancer age were considered, but it is probable that the ratio is the same in this community as in other parts of the country, that is, that of all deaths that occur after the age of 35 years, 1 in 12 die of cancer. There is no question whatsoever that it is within your power to reduce very materially this cancer death rate. Take for example, cancer of the breast. As conditions are at present, judging by other communities, I doubt that one case in ten of cancer of the breast is cured. I am very sure that 1

in 5, or 20 per cent are not cured as conditions are at present. If you would teach the women in this community and the women would act on your instructions, that any lump in the breast should receive immediate attention from a competent physician, I am sure that the percentage of cures from carcinoma of the breast would increase from a possible 10 per cent to 75 per cent, and possibly 90 per cent of all cases. This rests entirely with you as physicians and with the women in this community. The American Society for the Control of Cancer is ready to give you every assistance that we can. There are certain things that we can do for you, there are certain things that you will have to do for yourself. We can tell you the experience that we have had in other communities. We can tell you how to organize lay meetings. We can help you similarly in your local press. We can furnish you with such literature as we have at our disposal. We can furnish you with an intelligent lecture, or such general information on the subject of cancer as it is wise in our judgment to give to a lay audience. We can even furnish you with speakers if you wish it. On your part I would suggest that you hold an annual cancer meeting in your medical societies and impress upon all physicians their responsibility in regard to the handling of early malignant cases. I would urge that you hold in your communities talks on cancer before such lay organizations, as groups of nurses, women's clubs, school teachers. In fact any group of men or women that you can get together, who are interested in this subject. I would suggest that you urge your local press to make use of the bulletins of the American Medical Association and to publish such other articles containing information on cancer as seems to you wise. I believe that the time is not distant when the lay community will hold the profession responsible for neglected cancer cases to the same extent that they all hold us responsible for such conditions as appendicitis, strangulated hernia, etc.

THE ADVANTAGE OF EARLY DIAGNOSIS AND TREATMENT OF TUMORS OF THE BREAST.*

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In the female breast almost every variety of benign and malignant growth has been observed. Of the benign type fibro-adenomata are much more frequent. These tumors present themselves in a variety of forms, depending on the relative amount of growth between the stroma and glandular substance. The glandular tubules may increase in length and breadth, forming slit-like cavities lined with cylindrical epithelium, or may form cysts (cystoadenoma), or in the dilated cyst-like cavities (acini) may project polypoid growths on which develop malignant growths (cysto-sarcoma proliferum). Myxomatous degeneration of the stroma renders the tumor softer. This condition may be combined with proliferation of the glandular epithelium, or with cyst formation. These conditions are of more interest to the pathologist than to the surgeon.

Clinically, upon section, the fibro-adenomata are grayish-white in color, of homogeneous texture, except when cysts are present and often distinctly lobulated. Fibrous layers sometimes arranged concentrically, like the several layers of an onion, the firmness in consistency depending on the predominance of fibrous or glandular tissue.

These occur mostly in young women; rarely after forty. Painless, distinctly movable in breast and slow growth. Do not adhere to the skin or ulcerate, axiliary glands not enlarged. May in after years become malignant.

Lipoma, nearly always retromammary, pushes the gland prominently forward. The slow growth and elastic character renders the diagnosis not difficult.

Retromammary cyst, according to Halsted, gives an elusive glide out under the

*Read before the forty-third annual meeting of the Florida Medical Association at Arcadia, May 10-12, 1916.

palpating finger, when under firm pressure an attempt is made to test the elasticity. Solid tumors of the breast might conceivably, in the absence of adhesions or exudative reaction, give the same roller-like glide.

Judging from the literature one is lead to believe that sarcoma of the breast is rather a rare disease.

Geist and Wilinsky, of New York, give a pathological report of 508 cases of tumors of the breast with 3.9 per cent sarcoma of various types. 46.5 per cent carcinoma. Of the malignant 7.7 per cent were sarcoma. The fibro-myxosarcoma and spindle cell sarcoma being the most common type.

Sarcoma of the breast takes on the usual characteristic of sarcoma elsewhere. That is, a capsule surrounding the tumor which in places is very thin. The spindle cell type is lobulated, firm and elastic, with striated whitish or pinkish cut surface. Fibromyxosarcoma is usually softer and more succulent and may even present small cystic and translucent areas. The origin of these two is probably in the connective tissue of the breast. The difference in the two depending on the variation in the amount of intercellular tissue and the presence of degenerative changes in the stroma. These tumors grow slowly as a rule and often remain well capsulated for a time, and are considered midway between benign and malignant. Lymphnodes show no involvement.

The round cell type is much more rapid in growth, breaks through the capsule sooner and invades the skin and deeper structures. These tumors have a cellular, whitish and homogeneous appearance, cellular structure predominating the stroma.

Histologically it is impossible to demonstrate lymphoid tissue appearing in the breast or the skin overlying it. Therefore, in all probability, so-called lymphosarcoma of the breast is merely small round-cell sarcoma.

Cystosarcoma phylloides is an encapsulated, irregular, lobulated, soft tumor, usually involving one breast and is distinguished grossly by showing œdematous papillary intracystic excrescences.

Giant cell sarcoma is a tumor of rapid growth. Cells show evidence of rapid proliferation, being very vascular. The cell growth progresses faster than the vascular growth and pathologically shows evidence of necrosis, hemorrhages and also inflammatory zones.

The symptomatology shows no differential point between these tumors which would aid one to distinguish clinically between the various types. The tumors appear between the age of 29 and 45—average 39 years. In the report of Geist and Wilinsky all the women were married and the majority of them had borne children.

Adenosarcoma or periductal sarcoma probably represents sarcomatous changes in pre-existing fibro-adenomata.

Rarer tumors are osteosarcoma, reported by Stillings (all fatal). Chondrosarcoma, mentioned by Bland Sutton. Another very interesting condition is that one reported by Legroin in the native women of Algeria, in whom multiple tumors appeared in both breasts, which ulcerate, have no metastases, but death is produced by secondary sepsis.

According to Murphy, Paget's cancer is not primarily a cancer of the skin and nipple but one of the milk ducts. The first sign of Paget's cancer is a little yellow secretion from the nipple which keeps coming and coming. It irritates and finally destroys the squamous epithelial cells of the nipple and produces an ulcer. The external manifestations shown by irritation, inflammation and ulceration are only secondary manifestations. The patient not recognizing the severity of the condition thinks it only a superficial irritation of the nipple and treats with ointments. She does not realize that from the appearance of the first discharge this was already a cancer of great malignancy.

There is no other word spoken today which carries more horror with it—except it be war—than the word cancer. There-

fore, we are justified in making a strong fight against the malady. Statistics show 75,000 deaths per year produced by cancer, 25 per cent being from cancer of the breast.

Cancer of the breast is second in frequency to cancer of the stomach. After a clinical diagnosis has been made it is often too late for radical cure to be effected because it has ceased to be strictly local, but through metastases has become general and necessarily a lethal disease. Therefore, the importance of early removal of all tumors of the breast before malignancy and if malignant before secondary involvement in the mediastinum and elsewhere.

The first evidence of cancer of the breast in practically every case is a lump or tumor which is frequently accidentally discovered and is unattended by pain or discomfort. Statistical records have proven that 80 to 90 per cent of all tumors of the breast are malignant. Billroth reports 82 per cent; Schmidt, of Heidelberg, found 82.66 per cent malignant; Bryant 83.16 per cent; Gross 82.47 per cent. Mayo states that 80 per cent are malignant from the beginning and that of the remaining 20 per cent one-half ultimately become malignant.

Moore of London in 1869 demonstrated that cancer begins as a local lesion. Evidence is clinical, microscopic, experimental and surgical.

Clinically it is demonstrated by the fact that early in the disease the patient seems in every way to be in perfect health, well nourished, no pain or discomfort, eats and sleeps well. Could this be so if the disease were constitutional?

Microscopic evidence is conclusive as to the local nature of the affection. On cut section through the center of the growth one sees countless epithelial cells pathognomic of cancer. Such cells become fewer near the periphery and just beyond the edge no cells are found at all.

Experimental. Inject one of the lower animals with cancer cells, after a time there will appear a small localized tumor at the site of injection or needle puncture. It grows slowly but steadily. The animal appears as well as its fellows. If undisturbed, later the animal appears emaciated, loses appetite and appears to have pain along with secondary swelling elsewhere, and later dies from the constitutional condition.

Surgical. On excision with a fair amount of surrounding tissue, before secondary involvement, the wound made in so doing immediately heals and that is the end of the trouble.

Tumors of the breast are not to be treated by pessimists or faint-hearted surgeons who think removal unnecessary, but rather use the plan of watchful expectancy. The percentage of cures has been very much greater for those who have adopted the plan as laid down by Moore and Banks, of England; Billroth and Volkman, of Germany; Gross, Halsted, Warren, Myers, Mayo, Murphy, Rodman, Bevin and many other eminent surgeons of America, who advocate prompt and radical surgical treatment of all border line cases.

The surgeon who excises a part of the growth for pathological diagnosis is only adding fuel to the flames. If cancer, and only local, disseminated cancer cells may enter the blood and lymph stream and metastasize elsewhere, thereby making radical cure impossible. The only rational procedure is to remove all the tumor with a reasonable amount of surrounding tissue and submit to the pathologist who will furnish an immediate report.

Every growth of the mammary glands should be treated as malignant until proven to be benign. It is true that the greater percentage develop after forty, 20 per cent under that age. However one is not justified in watchful expectancy on the young, as malignancy in the young progresses much more rapidly and is more fatal. Because of the richer supply and greater potency of lymphatics, metastases develop more readily.

It is found that 25 per cent of patients operated on at the clinics of University of

Pennsylvania showed cancer and also a recent report from one of the German clinics shows that 25 per cent of abnormal involution had already undergone malignant degeneration. Even though malignant changes have not already begun, who knows but that they may not at any time?

How is cancer of the breast to be treated? Knowing, as we do, that it begins as a local affection the answer should be prophylaxis as well as curative.

Prophylaxis by removing all tumors of the breast.

Curative by free and early excision with the knife and complete examination of excised tumors.

Here is where the value of X-ray comes in. The value of X-ray in superficial cancer has become an established and recognized fact. Many roentgenologists have found tumors of the breast to disappear following X-ray therapy, but it is not altogether dependable as shown by failure to cure inoperable tumors and one should not rely on X-ray alone, yet it is of great value. It is of great value in post-operative treatment of cancer and every breast showing malignant involvement should have a rigid post-operative X-ray treatment.

Snow says that the notion of some that X-ray stimulates malignant growth is due to an inadequate exposure which stimulates cell growth and reproduction, the rays not being strong enough to destroy cancer cells.

The mortality following operation is too small to even mention. Less than one-half of one per cent. And if operation is performed early, permanent cure will result in the great majority of cases.

Jackson states that with the evidence we have today concerning the great danger from tumors developing in the breast one is practically following a criminal course who does not insist upon the immediate exploration of every tumor in a woman's breast as soon as it is first found.

Conclusions.

Because of the absolute impossibility of differentiating clinically tumors of the breast, of the high percentage of tumors of the breast showing malignancy, of the low mortality following operation and of the high percentage of cures following early removal, one is justified and I think required to remove all tumors of the breast.

All breasts showing malignancy should be subjected to a series of postoperative X-ray exposures by the roentgenologists.

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REPORT OF ONE CASE OF EPITHELIOMA INVOLVING DEEPER TISSUE.*

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It is not customary to report incomplete work. The reasons for making this report now are the importance of the subject and the results so far obtained. These have given ground for believing it is worth further investigation on inoperable cases. In the initial stage prompt and efficacious local treatment pushed to complete removal of involved tissue, will encourage patient and doctors alike, and help remove the now prevailing mystery pertaining to cancer.

The patient is my father, so there was an intimate knowledge long before a professional one of the case. The lesion began in 1892 as a scaly little spot at the outer can-

*Read by title before the forty-third annual meeting of the Florida Medical Association at Arcadia, May 10-12, 1916.

thus of the right eye. Treated the same year with either zinc or arsenic, it showed slight improvement, but traces remained. It was treated again in 1896 by internal as well as external medication, but with no improvement. Treated again with zinc chloride in 1902 and 1903, with apparently a complete removal. When it showed up again in 1906, zinc was again applied, and the symptoms disappeared, except an occasional pus discharge from the eye. In 1911, following a severe attack of grip—pain, swelling and discharge occurred, with a rapid growth of the tumor. At this time it was pronounced inoperable by Dr. Brown, of Tacoma, Washington.

These conditions increased until July, 1912, when the patient was sleeping almost twenty hours out of the twenty-four. The greater portion of both lids were involved as well as the orbital contents. Again the zinc chloride was applied, also X-ray was used. Considerable reduction in the mass and gain in strength resulted up to the time when the X-ray treatment began to disturb the circulation. After twenty-six applications it was considered advisable to discontinue the treatment. The tumor grew larger after the treatment was stopped.

September, 1913, the patient returned to Florida. Since then he has been under my constant observation.

Dr. J. G. DuPuis, of Lemon City, has given valuable assistance and supervision of the case in the treatment with radium. Where the radium could be applied to effect, it appeared to destroy the growth and the mass was greatly reduced. But when it came to applying it too directly over the eyeball, the pain was intolerable and the patient's vitality would run so low the treatment would have to be discontinued until he recuperated. An attack of influenza in one of the low-vitality conditions (May, 1915), started a more rapid growth of the tumor, and the patient failed to regain his former strength. Each relapse sending him farther down.

After applying the radium on January 20, 1916, the excruciating pain necessitated the use of morphine. The pain extending from the orbit to the occiput.

At this time the patient was almost seventy-eight years old, emaciated, strength nearly exhausted, appetite failing, hemorrhages frequent, necrotic bone discharge profuse, several small pieces of the superior maxillary having been observed since October 1, 1915. The entire right cheek appeared ready to break down. The prognosis was bad.

During a hemorrhage on January 30, 1916, emetine hydrochloride was applied locally. This checked the hemorrhage and slightly modified the necrotic discharge. Following the first application of emetine a distinct line of demarcation appeared extending almost to the lower edge of the upper lip. Within twenty-four hours the toxic symptoms were less pronounced.

Emetine hydrochloride, 1-2 grain daily, in broken doses was continued. By February 6th hemorrhages had ceased. By February 13th the necrotic discharge had disappeared. The first emetine disturbance occurred March 28th, lasting for about six hours. The following day there was a marked improvement in both the local and general condition. After a rest of two days emetine was again applied until nausea reappeared. This method of allowing a short rest after each period of nausea was continued until April 25th, when severe poisoning symptoms occurred—nausea, vomiting, diarrhea, dizziness, drowsiness and bluish pallor, accompanied by trembling and jerking of the muscles. This condition lasted for twelve hours. Digitalis and strychnine were used to support the circulation and saline laxatives to hasten elimination.

The sloughing away of the diseased tissue left the eyeball unsupported and on March 18th the cornea ruptured allowing the crystalline lens to escape. Since then almost the entire eyeball has been discharged.

At present (May, 1916,) the patient has good color, good appetite, is cheerful, wide

awake and is gaining strength. The line of demarcation has receded to a very small circle around the orbit and is very dim. The edge of the wound where there has been complete removal, has healed. There is still a slight discharge from the deeper structures involved, but this resembles "laudable" pus.

It was a theory advanced in the Journal of The Southern Medical Association, October, 1915, "Abstracts of notes on Amœbæ," by Roehr, that suggested the emetine experiment. Dr. Byrd also stated that there is a similarity in manner of growth between the cancer cells and the amœbæ. And on the strength of the axiom, things that are equal to the same thing are equal to each other, this experiment has been made in the hope that there is enough similarity between amœbæ and cancer for emetine to do the work.

AN UNUSUAL LOCATION FOR A SARCOMA: WITH REPORT OF A CASE.

P. C. Perry, M. D.,
Jacksonville, Fla.

My only excuse for reporting a sarcoma is its unusual location and the origin from the connective tissue; in fact one would rather suspect an epithelioma at this location rather than a sarcoma. The history of the case is herewith presented:

Mr. M., age 42, banker by occupation: Personal history negative other than the usual diseases of childhood. On the back of the right hand was a flat discoloration that had always been called a mole. He could not remember the time when this was not present. A year before I removed it he noticed for the first time that it had started to grow and was slightly elevated above the skin. While he was asleep some five months before he came under my care, he remembered being awakened by a sharp pain and thinks that in turning in bed, he struck the growth with the other elbow, causing the pain. From that time on there was a very decided increase in size so that when I made my original examination I found the following appearance: The growth about two or three cm. in size with a constriction about the base, say one and one-half cm. across, with the growth much elevated, moist and a great increase of the capillaries. No glandular enlargement either in the axila or arm, not painful but presenting a very angry appearance.

A careful investigation into the family history fails to show any malignant growth in any of its branches.

I wish to express my appreciation to Doctor Henry Hanson who submitted the following pathological report:

"The tumor submitted by you from the back of hand of your patient, M., is a sarcoma.

The growth is of a mushroom shape measuring about 2 cm. in its greatest diameter. There is no visible epithelial covering over the exposed portion of the tumor. The epidermis is reflected over the pedicle and out to the outer lower border of the mushroom-like growth.

Microscopic sections show the origin of the growth to be in the connective tissue under the germinal layer of the epidermis, where there is a tendency to cavernous formation and where one finds a perithelial proliferation of cells from the blood vessels in the immediate vicinity of the tumor. There is also an increase in small blood vessels in the subcutaneous connective tissue where this tumor originates. The endothelial cells in many of these vessels are distinctly hypertrophied and have changed from the flattened type to an oval type which in a general way resemble the cells making up the bulk of the tumor. Mitotic figures are fairly numerous. There is a slight hypertrophy of the epithelium at the fold of the pedicle of the growth, but there is nowhere any breaking through of the basement membrane. The bulk of the tumor is composed for the most part of large spindle-shaped

cells with large oval deeply-staining nuclei. On account of the proliferation of the endothelial and the perithelial cells and the presence of this type of cells in the main tumor, a diagnosis of perithelial angio sarcoma is made."

X-RAYS AND THE LIVING CELL.*

JOHN D. MACRAE, M. D.,
Tampa, Fla.

Since the discovery of X-rays clinical records have accumulated; from these observations facts of the greatest importance are recognized. Especially have we learned what tissues are most resistant and which are particularly sensitive to the radiations.

Radiotherapy is rational because we know what changes to expect in the different tissues when treated by radium or X-rays: but until we know what changes occur within the individual cell and why they occur radiology will remain more or less empirical. This, however, is not such a serious thing to charge against this field of work. Almost all of medical and surgical practice is at first empirical. It is only twenty years since X-rays were discovered and radium is an element which was discovered at an even more recent time. Researches are progressing and new facts are constantly being added to what are already recorded.

Physicists have refracted and measured X-rays. Their rate of travel is known and also the length of their characteristic waves. Their properties of producing fluorescence, ionization and chemical changes have been studied; laws governing their production and regulation have been formulated.

On the biologist is placed the burden of discovering just how and why the X-rays act on the living cell. Co-laborers in this field are physicists and physicians.

Vibrations producing X-ray are infinitely short. Cell organs and parts are atomic and subatomic in magnitude. Much of this subject is intangible.

X-ray influences may stimulate cell activity, may destroy cells, or the cells may resist radiation changes.

Why do these reactions come about and how are they produced?

Before considering some of the theories advanced to explain the reactions of living cells to radium and X-rays, let us review a few of the facts learned by clinical and experimental observations.

Sodium chloride exposed to X-rays turns from white to dark brown. The amount of color change is in direct proportion with the amount of exposure. This change is said to be due to the liberation of water of crystalization. I believe, however, that the change is caused by a rearrangement of the atoms within the molecule, produced by ionization.

The photo-chemical change occurring in the silver emulsion on photographic plates is a chemical change. These are reactions in inorganic substances.

Starch solutions, albumen, pepsin in solution and many other organic substances are observed to undergo changes when irradiated.

In the living body every tissue has been studied to determine the reaction produced in each by X-rays.

Senn, of Chicago, in 1903 directed attention to the effect of X-rays on the spleen. In leukæmia important blood changes occur. After exposure, within a short time, a marked increase in white cells is noted. A little later an even more marked decrease follows. This decrease persists for some days. Gradually the cells return to a point where they were when first submitted to irradiation, unless the dose is repeated. While this effect is being produced in the number of white cells, it is noted that the red cells are increasing in numbers.

Thymus, thyroid and indeed all glandular structure are particularly sensitive. The testicles and ovaries are so much so that they

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must be protected from prolonged exposure to avoid producing sterility. The active cells in the glands are destroyed by irradiation and a fibrosis takes place. Such organs undergo atrophy. These facts are taken advantage of in treating goiter, leukæmia, uterine hemorrhages when ovarian in origin, and so forth.

As for the nervous system, enormous quantities of radiations have been delivered to the brain without producing anatomical changes. It has been often noted that almost any other tissue in the body will succumb to attacks with the X-ray before any change or reaction is noted in the nervous system.

The eye in young kittens has been exhaustively studied. X-ray exposure causes it to be smaller than the control through under-development. Each part of the organ goes through some degenerative change as a result.

These experiments, however, were with young kittens, and it is a fact that all juvenile tissues are very sensitive to X-rays.

In a series of experiments of my own common varieties of garden seed were treated for one hour with X-rays. They were then planted beside other seeds taken from the same packages. The behavior of the treated seed and the control were practically the same. That is their time of germination and vigor of growth was the same. Of the same seeds another series of tests were made. Seven varieties were used. The tests and control were both soaked in water until germination started. They were then planted side by side, after the tests had received one hour's treatment with X-rays. As a result the tests came up or germinated much earlier, 25 per cent to 50 per cent earlier than the controls. In the first series there was no reaction because the seeds were in a resting stage when treated. In the second series, after germination had started, the seeds were in a state of active division. This condition and the dose were suitable to produce stimulation.

Stimulation of normal cells to rapid growth was noted in a recent case of epithelioma. The growth was a fungous-like mass on the forearm. The vigorous dose given was directed at the tumor and at the ring of healthy skin surounding it, which was a third of an inch wide. When the patient came in for observation in about two weeks after this treatment, the healthy skin, which had been exposed, was hypertrophied to a considerable extent. The margin had grown up, forming an elevated rim around the cancer. At the same time a destructive effect had taken place in the tumor. The malignant cells, being more sensitive, had undergone atrophy and the whole tumor was much reduced in size. This dose was twice repeated at three weeks' intervals with good results. Here we have stimulative effect and destructive effect in two types of cells produced by the same dose. This difference in degree of X-ray sensitiveness of different tissues is what gives X-rays a selective influence on certain types of cells.

I have observed many of the tests leading up to a particular set of experiments reported by G. A. Runner, entomologist in the United States Department of Agriculture, on the treatment of cigarette beetles, their eggs and larvæ with X-rays. The adult beetles were exposed to 600 M. A. minutes at 7 1-2 inches from the target of a tube with 5 1-2-inch spark gap. The beetles lived as long as the controls, but the eggs which they laid after exposure were infertile, while the eggs laid by the controls hatched, larvæ were treated with a similar dose. They were not killed at once, but none of them reached the pupal stage.

Eggs of this beetle exposed 150 M. A. minutes with the same tube conditions were destroyed. A few of the eggs well advanced in the embryonic state hatched but the larvæ died before becoming pupæ.

These are a few widely differing observations of reactions to X-rays or radium radiations. They do not furnish us an answer to our questions, but they serve to direct atten-

tion to the problems before us. Theories are advanced, but in spite of their merits, none are fully acceptable.

Prof. Richards, of the University of Texas, in an article on "The Biological Explanation of X-radiation Effects," sets forth three important theories.

The experiments of Schwarz with radium rays on lecithin led him to the conclusion that as this substance is decomposed by the rays and it is found in practically all cells it is the constituent whose destruction is responsible for cell death when exposed to radium or X-rays. This, however, is not logical because those cells which are richest in lecithin, that is the brain and nerve cells, are most resistant, while cells whose lecithin content is small are highly sensitive. Other investigations fail to support this theory. Moreover the chemical changes in lecithin, assumed by Schwarz, have not been proved.

The Hertwigs, of Berlin, observed that chromatin and chromasomes are the cell organs injured by irradiation. Other parts of the cell seem but little affected. This observation is borne out by the work of many investigators.

Different unicellular organisms have been studied to prove this theory. Ova and spermatazoa of frogs and ova of Ascaris megalacephala are easy to obtain and are often used for experiments in this field. It is found that developing ova vary in X-ray sensitiveness at different stages of nuclear division.

Mottram found that ova in a state of active division were eight times more sensitive than when in a resting condition.

Another theory, advanced by Packard, is that chromatin is indirectly disorganized. He says: The rays activate autolytic enzymes which bring about degeneration of the complex proteids. Richards irradiated a solution of pepsins and measured its power to digest albumin. He found that the pepsin irradiated for four minutes was activated. It digested albumin 12 per cent faster than the controls. At the same time he found that pepsin treated longer by X-rays became less active the longer its X-ray treatment. Richards also carried out a similar experiment with diastase and starch. The results were the same.

These are beautiful theories, but they are inadequate. Each contains some truth and represents a tremendous amount of work. Many other theories will be advanced, tested and discarded. But we are drawing nearer to the solution, when our questions will be answered.

ROENTGENOTHERAPY, WITH SPECIAL REFERENCE TO CERTAIN MALIGNANT CONDITIONS, TUBERCULAR ADENITIS, AND ECZEMAS.*

JOHN P. LONG, M. D.,
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Roentgenotherapy is the application of the Roentgen rays to the treatment of disease.

For superficial conditions such as epithelioma, lupus, eczema, etc., we use a low vacuum or soft tube; for less superficial lesions, such as tubercular glands, etc., we use a medium vacuum or medium hard tube; for deep malignancies we use a high vacuum or hard tube.

In treating all conditions in which X-rays are indicated the best index and safeguard we have is the condition of the skin.

It is often desirable to produce a mild degree of dermatitis (or first degree burn) in order to get therapeutic effect. Grubbe, of Chicago, says: "Dermatitis if properly produced is, within certain limits, a desirable feature of X-ray treatment." As an example of the above, a superficial epithelioma of the skin of forehead was treated with medium soft rays. A piece of lead-foil was applied over the surrounding skin and a hole cut to allow the rays to strike about a half inch

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of surrounding normal skin including the epithelioma. A dermatitis was produced in the normal skin surrounding the lesion, but not in the normal skin covered by the lead-foil. As long as dermatitis persisted treatment was withheld. As soon as the skin began to assume a normal appearance treatment was resumed. At present this case (Case II in case reports) seems to be about cured. Grubbe also says "In all open or broken down conditions a dermatitis should be rapidly produced." In treating the deeper tissues it is desirable to avoid producing a dermatitis. This is done in a variety of ways, e.g., aluminum filters are used to filter out the soft rays, which usually are the burning rays. These filters are from 1 mm. to 4 mm. in thickness. Tousey, of New York, also recommends the following filters, viz.: a single thickness of tin-foil of which 100 square inches weighs one ounce; a sheet of sole leather; Grubbe recommends a good thick coat of vaseline applied to the skin. Personally I have only used the sole-leather filter. This was used in the treatment of deep conditions and proved very effective in protecting the skin. In deep conditions another method of avoiding dermatitis is by cross-firing the diseased area, e.g., an abdominal condition may be treated through six different areas and the rays centered in the tumor. The areas through which the rays are not projected. should be protected from X-rays by sheets of lead-foil. Various standards are used for measuring the penetration of tubes, e.g., Holzknecht's units, measured by Holzknecht's chromoradiometer. A chemically prepared pastel is exposed at the same distance from the tube as the part under treatment, and the application is continued until the pastel has changed color to correspond with 1, 2, 3, 4, or 5 of the color scale. One H is about 1-3 of the amount of the X-ray that must be applied at one session in order to produce a visible reaction on the face. 3 or 4 H is a full dose; 5 H is a very large dose sometimes required in cancer cases.

Walter's or Benoist's units are measured with Benoist's radiochrometer. The degree of vacuum in the tube is indicated by the thickness of aluminum which the rays will penetrate. There is a central disc of silver 0.11 mm. thick, surrounded by sectors of aluminum numbered from 1 to 12, according to their different thicknesses in millimeters. When the aluminum sector 5 mm. thick casts the same depth of shadow as the silver disc on the fluoroscope screen the tube is said to be giving out No. 5 rays and is a tube of medium penetration. A hard tube gives out No. 7 or 8 rays.

I shall mention one more method of measurement, viz.: the Tousey method of measurement of dosage. One Tousey unit is the X-ray power which will produce upon kodak photographic film an effect equal to that of one-candle power of carbon filament incandescent electric light of the usual brightness, applied for the same time and at the same distance. Kodak film is selected because universally obtainable.

One Tousey unit second is the quantity of the X-ray which will produce upon kodak film an effect equal to that of one-candle power of carbon filament incandescent electric light, applied for one second at a distance of one meter.

Separate portions of a kodak film are exposed to one meter second of incandescent light and to various numbers of meter seconds of the X-ray which is to be tested. Then the entire film is developed in the regular full strength photographer's tray-developing solution (not the slower tank-developing solutions) for ten minutes in perfect darkness.

There are other methods of measurement which I shall not mention here. My method has been to measure my vacuum by the spark gap which the tube will back up. A soft tube backs up one to two inches spark gap; a medium tube two to three inches; and a hard tube three to five inches. I use a rheostat to measure my current, but not an ampermeter. There are three strengths of

current obtainable from my coil. The coil is of the Tesla type, portable X-ray and high frequency apparatus, with primary coarse winding outside and secondary finer windings with a ratio of about 110 to 1.

But this paper is not a description of apparatus, so we will not discuss them further than to say that I use the Fisher portable "E" coil.

Distance of the Tube From the Part Being Treated.

The deeper the lesion being treated the further the anticathode should be from the skin. If the anticathode (or target) is only four inches from the skin, the latter will be twice as near the former as a lesion four inches below the surface, and the skin would receive a radiance four times as strong as the deep lesion. This of course would be undesirable as we are endeavoring to treat the deep lesion and not the skin. If an epithelioma should require a distance of eight inches from the anticathode to the lesion, deeper seated lesions would require more than eight inches distance and eczemas would require slightly less. The following rule is given at the Illinois School of Electro-Therapeutitcs in Chicago. This of course is measuring from the surface of the tube and not from the anticathode:

One-inch vacuum (spark gap) calls for 2 to 3 inches from body surface.

Two-inch vacuum (spark gap) calls for 3 to 4 inches from body surface.

Three-inch vacuum (spark gap) calls for 4 to 5 inches from body surface.

Four-inch vacuum (spark gap calls for 5 to 6 inches from body surface.

Five-inch vacuum (spark gap) calls for 6 to 7 inches from body surface.

Six-inch vacuum (spark gap) calls for 7 to 8 inches from body surface.

I have not adhered to this rule strictly.

In regard to the time of exposure I have adhered to the 5- to 10-minute exposure. In the majority of cases where they could come for treatment twice a week I have given six-minute exposures. Where I can get the patient only once a week I have given ten-minute treatments.

The malignant conditions in which X-rays are successfully used are in the order of success; epitheliomata, especially where there is no adhesion between skin and deeper tissues. In such cases where there is no glandular involvement cure can usually be effected. Where adhesions have taken place, the prognosis is not nearly so favorable. In the latter class of cases X-ray treatment should supplement surgery and not take its place.

When a malignant condition is operated on, X-ray treatment should be instituted immediately following the operation without waiting for cicatrization. The surrounding tissues should also have the benefit of X-ray.

Next in order of success comes carcinoma of the breast which has been operated on but in which recurrence has not taken place. Where recurrence has taken place, life may be prolonged for months or even years, but a fatal result eventually takes place. Failure usually occurs in the following, viz.: carcinoma of the tongue, larynx, stomach, intestines, uterus, penis and secondary glandular involvements which should include metastases. In spite of the above statement Pfahler reports a cure of adeno-carcinoma of the larynx and of recurring carcinoma of the breast following operation with X-rays.

Sarcomas.

Pfahler says that he "has always felt that sarcoma was more amenable to treatment by X-rays than carcinoma and his general results show a healing process in about fifty per cent." He reports four cures, an inoperable sarcoma of the right side of the neck under the jaw, a myxo-sarcoma of the thigh, a sarcoma involving the hard palate, soft palate crowding upward and filling two-thirds of the right antrum, and a round-cell sarcoma of the tonsil. Two of these were treated post-operatively.

Pfahler of course has had the advantage of the use of the Coolidge tube. Dr. Cunningham, I think, will tell us something about the use of this wonderful X-ray tube.

Martin, of Dallas, has had uniformly unsuccessful results with the use of X-rays in sarcomas. He apparently did not use the Coolidge tube. I have had one case of sarcoma and it terminated fatally (Case I).

Non-Malignant Conditions.

The following skin diseases respond favorably to X-rays: Acne, favus, sycosis, psoriasis, keloid, eczema, pruritus, tinea capitis and lupus.

My experience in above mentioned skin diseases has been limited to eczemas, which include so-called "tetter" and pruritus ani.

Tuberculosis in Other Than Skin Conditions.

The X-ray has no destructive influence on the tubercle bacillus either directly or indirectly. On localized tubercular lesions (bones, joints and glands) X-rays have a marked curative influence. Dr. Wm. J. Butler, of Chicago, gives the best explanation I have heard; he says this is due to the hyperemia which is induced by the rays causing the patient to manufacture an autogenous tuberculin, just as he does in Bier's hyperemia.

On pulmonary tuberculosis the X-ray has no curative influence. Sometimes phthisical patients seem to improve, but they are so optimistic they would also seem to improve under any other remedial agent. I report one case of tubercular adenitis apparently progressing to cure.

Martin reports success in the treatment of prostatic hypertrophy, exophthalmic goitre, Hodgkin's disease and pseudo-leukemia.

The following cases, while small in number, perhaps will have some bearing on the subject:

Case I. P. S., white, age 15, male. General peritoneal sarcomatosis.

About three months previously Dr. R. B. Harkness, of Lake City, removed a large sarcoma from the abdominal cavity and the boy had an uneventful recovery and seemed as well as ever. No post-operative X-ray treatment was given because none was available at the time. Recurrence took place (following a blow in the abdomen with a tennis ball, according to patient's statement. To me this is rather far-fetched reasoning). Patient then had bloody urine showing bladder involvement. Dr. Harkness made an exploratory incision on July 14, 1915, and found the case inoperable with bladder wall involvement. He then turned the case over to me for X-ray treatment, as I had just received my coil. This was my first case and with such a serious prognosis facing me, I had previously written Dr. E. S. Blaine, head of the X-ray Department of Cook County Hospital, Chicago, a few days before the operation, to advise me what technique to use. I received the following directions: "The wound should be closed as usual and treatments given through the abdominal wall; use a high tube (more than five-inch gap); divide the abdomen into at least six areas; give five minutes in each area; be sure to protect all other areas except the one under exposure; target-skin distance about seven inches; at least two mm. aluminum filter." As I had no aluminum filters he gave me the following advice: "You can get a piece of 2 mm. aluminum four to six inches square and lay it on the patient's skin. If this is a case of general peritoneal sarcomatosis do not expect much benefit."

In the last sentence of his communication Dr. Blaine was amply justified, as the case went rapidly to a fatal termination. It was not convenient to obtain the aluminum so I used sole leather for a filter, divided the abdomen into six areas and gave five-minute treatments every other day, at seven-inch distance and a tube which backed up a five-inch spark gap.

The skin never showed very much dermatitis. The wound healed uneventfully; the

urine became free of blood; the patient felt better; we all became hopeful including the patient.

In about a week the last stitch had been removed and the tumor seemed a trifle larger. Next day it seemed a good deal larger and then it grew by leaps and bounds. As soon as it was perceptibly larger I gave treatments every day and for ten-minute intervals. Patient's limbs swelled from pressure on veins, and pain in limbs was agonizing from pressure on nerves.

Morphine had to be given at stated intervals and on the night of August 5th the patient died. A few hours before he died a great deal of swelling left the legs and thighs, probably from softening and breaking down of tumor and release of pressure on veins.

Case II. T. J., white, age 45, male. Epithelioma on forehead.

Circular in area, diameter about 1 1-2 that of a silver dollar. No ulceration, skin freely movable. Treatment begun August 11, 1915. Treatments were given every other day for a period of ten days. The patient then went to New York for ten days to buy goods (he was a merchant). When he returned treatments were resumed, being given twice a week until a dermatitis surrounded the lesion for a half inch. Treatments were then withheld and resumed when dermatitis started to subside. During the month of December, 1915, all treatment was stopped and resumed January 1st. Treatments were then given twice a week till a dermatitis resulted, discontinued till dermatitis began to fade and then resumed. This method of treatment is now being followed and patient gets about three treatments per month on an average. He is about cured, but has a few scaly crusts on upper part of lesion. I am anxious to know just when to stop and hope some of you more experienced roentgenologists will tell me. My technique for this case has already been described, so I will not burden you with that again.

Case III. J. B. R., negro, age 25, male. Tuberculosis of glands of neck. Came under my care September 11, 1915. Two very large tubercular glands on right side of neck had suppurated. I referred him to a surgeon who declined to operate as the negro was a pauper and had no place to go to be operated on. There were no hospital facilities for negroes. Moreover he could not get anything suitable for a tubercular patient to eat. Now this was not very promising material for X-ray work. Martin, of Dallas, says that in suppurating tubercular adenitis the pus may be made to undergo caseous degeneration. To begin with I aspirated most of the pus with trocar and canula and sealed the openings with collodion and cotton. Then I applied my X-ray about every third day with a medium hard tube, distance eight inches, six-minute exposure. Being a negro, the skin was a very poor guide. In fact the skin sloughed over one of the glands, exposing caseous matter over a surface as large as a ten-cent piece. Eventually it granulated and healed. As I mentioned before, he was a pauper and could not always get a good square meal three times a day, so whenever he came for treatment I sent him to my home for a good square meal. This was a double inducement for him to come for treatment regularly and he has come for his treatment and all the good things that went with it quite faithfully.

About November 1st a new gland appeared just beneath the chin as large as a pigeon's egg. Then I gave the patient a good looking over and found that he was syphilitic. On mercury and iodides he fattened up, but had a skin rash which persisted. An intravenous injection of arsenobenzol (Schamberg) cleared up the rash. He gained fifteen pounds and about January 1st got a position as farm hand, at which he is now working. His glands are progressively growing smaller, and I have no doubt he will eventually be a cure.[1]

Case IV. P. L., white, male, age 40. Pruritus ani.

Patient has been a sufferer more or less for twenty-years. Was given four treatments in January, 1916, with a soft tube, distance eight inches for ten minutes. A piece of lead-foil with hole four inches in diameter was used to protect surrounding parts. After the fourth treatment a dermatitis appeared and the pruritus was apparently cured. About a month later it recurred. Since then about six treatments have been given, with temporary relief, but have been unable to produce much dermatitis. Perhaps my distance has been too great. Will try four to six inches in future.

Case V. S. A. R., white, male, age 45. Carcinoma of penis.

This is a carcinoma of the glands (probably an epithelioma) of twelve years' standing. The case came under my care February 21, 1916, and was in the ulcerative stage. He had been using a "plaster" which some quack had sold him, but which had failed to remove the necrotic tissue. He was suffering great pain and had recourse to both morphine and whiskey. I accepted the case on condition that if there was not marked improvement at the end of the month, surgical measures should be undertaken. Apparently there was no glandular involvement. Treatments were given twice a week, and in all eight treatments were given. A medium vacuum was used for six-minute exposures, nine to ten inches distance. He was greatly relieved of his pain, but no clinical improvement took place. At the end of the month he went home to think over the matter of operation, and would let me know in a few days. Nearly two months have passed and I have not heard from him.

Case VI. D. E. S., white, female, age 60. Epithelioma of lower lip.

Years before the patient had a cancer at the junction of the nose and superior maxillary bone which was removed with a "plaster." There have been several recurrences. One small, non-ulcerative one at the temple, a very small non-ulcerative one on the bridge of the nose, and a large ulcerating one of the lower lip. My energies were chiefly expended on the lower lip, and it had begun to cicatrize. The patient was treated March 14, 18, 25, 31, and April 8, 1916. Then she suddenly ceased coming and as she lives in an adjoining town I have not been able to get in touch with her. It was a very hopeful outlook and I can not understand why she discontinued treatment.

Case VII. C. T., white, male, age 19. Eczema (so-called "tetter") right hand.

From March 8th to the present time this patient has had six treatments with a very soft tube, distance six inches for six to ten minutes. The condition is improving and the outlook is very hopeful for a cure.

A few words on the subject of X-ray burns:

I have never had a burn proper in my practice, so can not speak from experience.

First-degree X-ray burns amount to little more than dermatitis, and if we stop at the first-degree burn no harm is done.

In the second-degree burn there is bleb formation which may or may not coalesce.

The third-degree burn goes deeper than the skin and sloughing takes place.

The following rules of treatment are given by Dr. Grubbe, of Chicago, who has had abundant personal experience with burns. He was one of the pioneers in the manufacture of X-ray tubes and he and his co-worker tested their new tubes on each other with the fluoroscope. The co-worker paid the penalty with his life, and Grubbe is frightfully burned on chest, back and hands. It is needless to say that he will carry these burns to his grave.

For the first-degree burn, apply a saturated solution of sodium bicarbonate where there is itching, and allow to dry.

If the X-ray is withheld, the first-degree burn gets well. The X-ray is cumulative and if applied over a first-degree burn it may be converted into a second-degree burn, which is a more serious matter by far. The blebs should not be allowed to coalesce nor burst. Apply plain dry sterile gauze to prevent the

blebs from rupturing. Apply a saturated solution of sodium bicarbonate as in the first-degree burn.

Where the blebs have ruptured and in third-degree burns with infection, use a saturated solution of potassium permanganate (made by saturating boiled distilled water) for cleansing the infected areas. Apply as long as there is any evidence of pus and dress in sterile yellow vaseline.

Grubbe says under no circumstances allow any one to excise an X-ray burn, as the deep tissues have no more vitality than the superficial tissues and will not granulate.

Conclusions.

If conclusions are admissable from my small number of cases the following may be drawn:

1. The X-ray has a large field of usefulness, especially in non-malignant cases.
2. In malignant cases it should be used in the curable cases and should not be omitted from the incurable ones, as life may be prolonged and pain relieved.
3. The X-ray should not replace surgery, but should supplement it. Where malignant growths are removed surgically, the X-ray should always be used immediately following the operation, without waiting for cicatrization.

[1]At time of going to press this negro is completely cured of adenitis, only a few small fibrous lumps remaining in neck.—*Author's Note.*

THE DIFFERENTIAL DIAGNOSIS OF LESIONS IN THE UPPER RIGHT QUADRANT.*

L. J. EFIRD, M. D.,
Tampa, Fla.

In presenting this subject I realize the enormity of my task. I know that it is inexhaustible, so I am going to simply name some of the many lesions we have to think of in connection with trouble in the upper right quadrant, and will limit myself for discussion to four very important conditions that may be confused with one another, with symptoms referable to this region.

First of all let me emphasize the fact that it is almost impossible to arrive at a correct diagnosis without a careful family and personal history of your patient, coupled with a very painstaking and exhaustive physical examination, this to include the use of the X-ray, and examinations of the blood and urine. At times it may seem tedious and commonplace to both patients and physician to lay stress on data such as age, occupation, general habits of diet, previous illnesses, etc., but neglect of one minor detail may distort the clinical picture and lead the diagnostician very seriously astray.

The conditions we have to think of may be named as follows: Sub-phrenic abscess, pneumonia of the right lung, tumors and cysts of the liver. Tumors of the liver apart from those of the gall bladder and bile ducts have little practical interest except from the aspect of diagnosis, for only in a very few exceptional cases, so far, has it been possible for the surgeon to attempt any radical cure. With the exception of adenoma, benign solid tumors of the liver are surgical rarities. 96 per cent of liver tumors are secondary.

Hydatid cysts of the liver may exist and produce no signs nor symptoms unless they become very large; here then we may get fluctuation and fremitus and the signs of a tumor. Patients of Greek birth seem to be especially susceptible. In gummata of the liver the Wassermann reaction is a valuable aid to diagnosis. Hepatoptosis is a rare condition. Carcinoma of the gall bladder can usually be palpated. It is hard and nodular, not much abdominal rigidity. Long history of attacks of biliary colic and recent pronounced loss of flesh. Sooner or later we have a jaundice which deepens and persists. Renal calculus, in this the pain is usually in the loin, intensified by fist percussion. The urine is often albuminous and sometimes contains blood; we will have frequency of urination, pain radiating to the testicle and

*Read before the forty-third annual meeting of the Florida Medical Association at Arcadia, May 10-12, 1916.

penis and history of the typical nephritic colic. An X-ray examination will generally clear up the diagnosis. In hydronephrosis we have a mass, not painful, in the loin, dull on percussion which comes and goes, a large urinary flow occurring as it disappears. In pyonephrosis we probably will have a similar mass, but painful; constitutional symptoms of suppuration, pus in the urine. Diagnosis will be rendered more certain by catheterizing the ureters.

Now the condititons I want to especially discuss are first, cholecytitis; secondly, abscess of the liver; third, ulcer of the duodenum, and fourth, appendicitis.

The clinical history of the majority of gall stone cases admits of an easy diagnosis. The chief things are that the symptoms appear in these gall stone cases in well defined, decided attacks of short duration, and in which after subsidence, there is an intermission of days, months or years frequently of perfect health, except in the complicated cases. The attacks come suddenly without warning, and there is an abrupt cessation which is as sudden as the onset. The formation of a stone requires several months, and during the antecedent period of gastro-intestinal catarrh we will have constipation, flatulence, loss of appetite, headache, uneasy sensations in the epigastrium or right hypochondrium, sallowness of the skin, slight jaundice, scantiness of urine and full of uric acid and may later contain bile. These symptoms indicating that we have an extension of our gastro-intestinal catarrh up into the bile ducts and gall bladder, giving us also a catarrhal cholecystitis and cholangitis.

Gall stones lead to enlargement of the gall bladder far less often than might be expected. In a middle aged patient in whom there has has not been any very definite attacks of biliary colic, the occurrence of progressive and considerable enlargement of the gall bladder, associated with deepening jaundice and no ascites, should arouse serious suspicion of there being a lesion of the head of the pancreas, which has extended along the pancreatic duct so as to occlude the common bile duct gradually. The commonest cause of these symptoms is either chronic pancreatitis or carcinoma of the head of the pancreas. The greater and the acuter the pain the more liable it is to be pancreatitis rather than a new growth. According to Murphy the pain of "an acute pancreatitis is so striking, so much in contrast with anything else that you just naturally arrive at a diagnosis by the intensity of the symptoms. The pain is prostrating, the attack fulminating. It is far worse than a biliary colic, worse than renal colic, worse than a perforation."

Gall stones sometimes cause an enlargement of the gall bladder, but when this is true there is decided tenderness and pain, especially upon palpation, associated with a rise of temperature, possibly with rigors, especially if the inflammation has spread to the bile ducts producing a suppurative cholangitis. Leucocytosis with a relative increase in the polymorphonuclears would indicate that in addition to gall stones there is a suppurative inflammation—empyema of the gall bladder. To quote again from Murphy, "in 100 cases with great sensitiveness over the gall bladder on perpendicular percussion there will usually be about four cases without lesion in the gall bladder. These four cases, as a rule, present very acute upper abdominal lesions which demand more immediate surgical relief than does an obstructed gall bladder, and so, if one operates these cases thinking them to be acute gall bladder lesions, the error is not expensive to the patient, but rather of advantage to him, since the operation allows us to make the correct diagnosis, and at the same time to institute immediate treatment usually urgently needed. These lesions are: Perforations of the duodenum and pyloric zone of the stomach, acute pancreatitis and appendicitis where the appendix is high up in the abdomen."

The three common lesions that one is likely to confound with a recurring inflamma-

tion of the gall bladder are: Appendicitis, obstruction to the outlet of the kidney and an infection involving the kidney. Perpendicular percussion will usually settle the matter if the trouble is in the gall bladder. The sinking in of the hand on the left side of the abdomen, and the comparative resistance to it on the right side is often a deciding factor if it is in the appendix. Fist percussion over the kidney, or the "jack knife" reaction (of Murphy) of the patient to the pain caused, gives one positive proof that the lesion is in the kidney. These tests can be made by all of us at the bedside of the patient, and if made properly and interpreted correctly we can state positively just where the lesion is. The microscope and the X-ray are great aids to clinch our diagnosis, but these three simple procedures are of more value in themselves than a whole series of pictures or a dozen blood counts.

The symptoms of abscess of the liver may be very definite and positive, or they may be misleading and obscure. I have seen several cases of amœbic abscess of the liver which had been treated several weeks for typhoid fever. Upon operation these cases were demonstrated to be amœbic abscesses. Kieffer sums up the chief symptoms under four heads: "Fever, sepsis, enlargement of the liver and pain." I would add, severe and intensified pain on fist percussion over the liver (this sign is always positive in liver abscess), and pain referred to the right shoulder and under the right scapula. Most of these patients have sweats. In amœbic abscess we get a history of amœbic dysentery. The enlargement of the liver very rarely enlarges in a downward direction, but enlarges upward, and sometimes reaches as high as the third rib. In large abscesses fluctuation may be obtained. The patient will lie on his right side, with the right shoulder pulled down and right leg drawn up. We will find a jaundiced condition in about one-third of the cases, in the cases where the bile ducts are compressed, or a cholangitis exists. A leukocyte count is of no practical value as there may or may not be a leuckocytosis. Never a leukocytosis with an amœbic abscess unless a mixed infection. An exploratory puncture would probably help to clear up the diagnosis, if we were fortunate and got our needle into the abscess, but this should not be made until we are ready and the patient is ready for a radical operation.

Sometimes ulcers in the duodenum exist without any symptoms until a sudden and perhaps fatal hemorrhage or perforation declares its existence. The pain in duodenal ulcer comes on just before meals, and is often called "hunger pain," and the patient often finds that some food taken will relieve the pain. This is explained by a spasm produced by the pylorus closing when there is food in the stomach, and the hyper-acid juice no longer gains access to the duodenum. It sometimes occurs significantly in the small hours of the morning. It is of a burning character and located in the right mid-line or along the costal border. This colicky pain, as said, is caused by pyloric spasm. These patients will not restrict their food to any great extent at first, consequently there is no appreciable loss of weight in the early stages. As the ulcer continues, however, the pain becomes more constant, the diet is then cut down, the patients are underfed and emaciation results.

A chronically diseased appendix is a positive menace to the health of the patient. Through the sympathetic nervous system its scroll of vexation is so far reaching that it may agitate every organ in the abdominal cavity, and cause it to masquerade under a mantle of symptoms so adroitly that any organ, though free from pathology, may become the recipient of an unjust accusation, and this is especially true of the liver. These patients are not sick enough to be in bed, not well enough to be at work. After two or three hours' work they become fatigued and feel unfit to meet the requirements expected of them. They think "liver trouble, bilious,"

and often the physician prescribes accordingly without going thoroughly into the case, and determining the real condition. Sleep is usually good, but not refreshing; appetite is variable, they could eat heartily, but are afraid, because they have a feeling of fullness and sometimes nausea after eating; usually a gassy feeling with distress amounting in some instances to pain; this pain is usually referred to the stomach and radiating to the right, or indefinitely through the bowels. Taking food moderately becomes a habit, and by observing a rigid diet these patients make themselves fairly comfortable. In most cases the bowels are obstinately constipated. Bilious again—more calomel, liver-tone, cascarets, etc. The general feeling of these patients is one of apathy. Many of them have been long and constant sufferers, and are really in a miserable state. They have drifted into a neuropathic state with an associated psychological condition that demands the most careful and exhaustive examination to disclose the real cause.

Others give marked evidence of a toxemia caused by the absorption of ptomains from the intestinal tract and are quite anæmic. If you ask them if they suffer pain they will put the hand over the region of the stomach, and with a sweep pass it over the entire abdomen. They will tell you that they get greater relief from enemas and from stomach washes than from drugs. Many of them are discouraged, for they have usually been the rounds, and no treatment has been of any avail. Oftentimes they are considered dyspeptics, neurotics, neurasthenics or hypochondriacs and are sent on to the neurologist.

Even indefinite as the symptomatology appears as is presented by these patients, it should permit the elimination without difficulty of gastric neurosis, gall bladder disease or kidney lesions, and a thorough examination, including a series of X-ray pictures after a bismuth meal, should eliminate from the picture atonic dilatation of the stomach, visceral ptosis and prolapse of the kidney, leaving for contention either a chronic duodenal ulcer or a chronic appendicitis, and we can usually decide correctly between these lesions after a careful study of our X-ray pictures.

Now just a few words as to acute appendicitis. The differential diagnosis between this and an acute cholecystitis would usually be easy if the gall bladder and the appendix were invariably in their normal positions. This is not, however, the case. Sometimes the gall bladder reaches as far as the ileocoecal region, whether the liver be movable or not, but more frequently the appendix is high and directed outward. At other times its position is in close proximity to the gall bladder. When the inflammatory process occurs above the line joining the anterior superior spine to the umbilicus, we have to do with appendicitis *if the pain or resistance* reach far *towards the side* and if the lumbar muscles respond to pressure, by contraction; but any inflammatory process *internal* to the external border of the rectus muscle must be ascribed to the gall bladder.

We may even have a certain amount of jaundice in acute appendicitis, and if the appendix lies near the gall bladder, so that the biliary passages are secondarily involved in the inflammation, the jaundice may become very pronounced.

PROPAGANDA FOR REFORM.

CAMPHOR, NATURAL AND SYNTHETIC.—Though having the same chemical composition, natural camphor is levorotatory while synthetic is optically inactive, it being a mixture of levorotatory and dextrotatory molecules. Synthetic camphor, used externally and in moderate doses internally, has been reported to have the same effects as natural camphor. The evidence is however unsatisfactory. The natural product being readily obtainable, there is no warrant for the therapeutic use of synthetic camphor until more conclusive evidence is at hand. (*Jour. A. M. A.*, October 30, 1915, p. 1555.)

CARDUI, THE STORY OF A NOSTRUM.—Harper's Weekly (October 23) traces the growth of the Wine of Cardui business. The author, stated to have been employed by the manufacturers, denies that the nostrum will perform the many wonders claimed for it by the manufacturers, and says that there is one miracle that Cardui can perform—it can make money. (*Jour. A. M. A.*, October 23, 1915, p. 1466.)

ELIXIR CALCYLATES COMPOUND. — Each dessertspoonful of this specialty is said to contain the "equivalent of" Calycylates (calcium and strontium di-salicylate) 5 grains, resin of guaiac ½ grain, powdered digitalis leaves ¼ grain, powdered squill ¼ grain, extract of colchicum seed ¼ grain, cascarin 1-16 grain, aromatics. One or two dessertspoonfuls are to be taken 3 to 4 times a day. The mixture is to be given in cases of "rheumatism, lumbago, neuralgia, sciatica, etc." If a salicylate is indicated it should be given in sufficient amount in the form of sodium salicylate; the patient should not be given a preparation containing ingredients in the way of guaiac, skuill and colchicum which are not needed. Digitalis is rarely indicated in inflammatory rheumatism and it should never be given in a multiple mixture. (*Jour. A. M. A.*, April 22, 1916, p. 1307.)

EPISAN (BROBOR).—The Council on Pharmacy and Chemistry finds Episan, recently renamed Brobor, ineligible for New and Nonofficial Remedies. Neither name indicates the active ingredients—potassium bromid, 44.3 per cent, borax 41.2 per cent, zinc oxid 3.68 per cent, and amyl valerate 4 per cent. A physician prescribing the preparation under either name would not realize that he was administering borax, and therefore would not take the precaution to watch the intestines and the kidneys. Also, he would not realize that the treatment was essentially a bromid treatment. There is no evidence to show that borax is harmless, as claimed, or that either borax or zinc oxid is a nerve sedative. (*Jour. A. M. A.*, Sept. 25, 1915, p. 1130.)

GRANT'S EPILEPSY CURE.—Fred E. Grant, Kansas City, Mo., sells an "epilepsy cure" on the mail order plan. Analysis in the A. M. A. Chemical Laboratory demonstrated it to be a bromide mixture containing as its essential ingredients about 15.8 gm. potassium bromid and 0.9 gm. sodium bromid per 100 c.c. (*Jour. A. M. A.*, Sept. 4, 1915, p. 894.)

MICAJAH'S UTERINE WAFERS AND PISO'S TABLETS.—The A. M. A. Chemical Laboratory has determined that Micajah's Uterine Wafers and Piso's Tablets are practically identical—a mixture of dried alum, borax and boric acid. While Micajah's Uterine Wafers are advertised to the medical profession, Piso's Tablets are a "patent medicine." The claims made to the public for Piso's Tablets are silly and mischievous —but no more so than those made to the medical profession for Micajah's Uterine Wafers. (*Jour. A. M. A.*, Sept. 25, 1915, p. 1128.)

MIXED VACCINES.—There is no rational basis for the use of mixed vaccines. So far as infectious diseases, the etiology of which is known, are concerned they are caused by a single, specific organism, as for instance in diphtheria, tetanus, meningitis, typhoid fever. The mere presence of a multiplicity of organisms in cultures taken from an infected region is no sign that the symptoms are due to all the organisms. The use of the stock mixed vaccines of commerce is irrational because it is based on the conception that infections are caused by more than one kind of micro-organism; it is harmful because it encourages superficial examination, slipshod diagnosis and routine treatment without individualization; it is unnecessary because, when the physician desires to use more than one vaccine, he can inject them separately or mix them at the time of injection. (*Jour. A. M. A.*, Aug. 21, 1915, p. 719.)

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Next Meeting — Atlantic Beach — May, 1917

OUR CANCER NUMBER.

In submitting this, our second annual cancer number of THE JOURNAL to the profession of the State, we do so with the earnest hope that it will not fall short of its purpose: to stimulate a greater interest in the cancer problem as it presents itself to us today, in order that we may feel more keenly our individual responsibilities in aiding in the solution of the problem.

The enormity of the cancer situation with its yearly toll of eighty thousand lives in this country should not discourage us, but should lead us to give our best efforts to conquering it. The problem presents so many sides exposed to vulnerable attack that we will certainly make a destructive impression upon it if everyone does his share of the work.

Of course the ultimate discovery of the actual activating cause of cancer, and the specific cure—if it ever comes—will most probably come from some of the great cancer research laboratories; but as the problem presents itself now removal by surgery in the earliest stages offers the best hope of cure. We do not know the actual cause, nor have we a specific cure, other than the removal of the growth; but we do know that a vast number of cancer deaths are unnecessary, and could be prevented by operation in the early stages of the growth, or in the precancerous stage. This is the side of the problem exposed to the attack of the profession at large—the family physician. He is the one to look for and discover precancerous lesions, and see that they are removed before they become cancerous. He is the one to instruct the laity concerning the danger of neglecting the signs of impending cancer. He is the one whose memory THE JOURNAL hopes to jog.

THE SOUTHERN MEDICAL ASSOCIATION.

The annual meeting of the Southern Medical Association will be held at Atlanta, November 13, 14, 15 and 16. The outstand-

ing feature of the meeting this year will be the clinics which will be held from 8 to 10 every morning, to be conducted by visiting clinicians.

The Railway Surgeons, the Public Health Section and the Conference on Medical Education will hold meetings on Monday, the 13th. On the evening of this day a public meeting will be held with addresses by prominent health workers.

The programs for the Sections on Medicine, Surgery, Eye, Ear, Nose and Throat, Public Health and that of the Southern States Association of Railway Surgeons are practically complete and indicate that these meetings will, as usual, be well worth attending. The discussions on the various papers read, always an interesting part of a scientific program, will be reported by expert medical stenographers employed for the occasion.

On Tuesday night, the 14th, a reception will be held at the Capital City Club. On Wednesday a "Georgia Barbecue" will be a feature entertainment conducted at the Druid Hills Country Club. This club possesses one of the finest golf courses in the South. A golf tournament is planned for Friday, the 17th.

Always a feature, the Alumni reunions this year are receiving especial attention.

All railroads east of the Mississippi river have granted reduced rates and an attendance of over two thousand members is anticipated.

Atlanta is an ideal city for the holding of any convention and with its excellent hospital and hotel facilities all guests are certain to be kept thoroughly interested and well entertained.

It is to be hoped that the Florida Medical Association will send a good representation to the meeting.

PLAYING TO THE GRANDSTAND.

"Grandstander" is a term of more than mild reproach used to characterize the athlete who plays his game in showy fashion with an eye to the plaudits of the onlooking multitude. In football, he is always limping after a tackle; in baseball, he is excessively active, making unnecessary motions and attempting to cover ground he was never meant to cover; in golf, he adjusts his tee with a nicety which can have no effect on the distance of his drive, and if he "slices," the "gallery" is indulged with an exceedingly technical discussion of just how it happened. No one is so inclined to "grandstand" as the American officeholder or public official. The medical aspects of the matter are being displayed in the present epidemic of infantile paralysis. The measures employed by some officials to stay the progress of the epidemic, while apparently logical in every instance, at times impress the average observer as being merely an attempt to play to the grandstand. In some communities the health officers appear daily in interviews in which they call attention to their immense activities in preventing the spread of the disease. Every move is chronicled in the newspapers, and press notices are sent to those papers which fail to interview the official personally. Commissions are appointed to investigate when there are no funds for such purposes, and in some instances when there are not enough cases to form a respectable basis for an investigation. Frequently a "grandstander" in athletics is rewarded merely by the hisses of those whose encomiums he seeks. It would not be strange if a similar fate should befall some of those public officials who carry the unsportsmanlike attitude of the "grandstander" into the care of the public's health.—*Journal of the American Medical Association.*

PARKE, DAVIS & COMPANY, 1866-1916.

Parke, Davis & Company celebrate their golden jubilee on the 26th of the present month. In connection with this celebration they have issued a "Jubilee Souvenir," an

attractive booklet giving the history of this enterprising house from the date of its organization to the present time. The booklet contains cuts illustrating the original home of the organization and of the buildings occupied as the firm developed to its present status of unexcelled facilities. Portraits are also shown of "Leaders of the Past," together with those now actively engaged in the various departments. Of especial interest are the scenes illustrating Parkedale Farm. Our space will not permit a more full review of this interesting souvenir, but any physician desiring a copy may secure one by addressing the firm.

Cancer Department

"In the early treatment of cancer lies the hope of cure."

AMERICAN SOCIETY FOR THE CONTROL OF CANCER

ONE OF THE RESULTS OF INSTRUCTION OF THE LAITY CONCERNING CANCER.

An elderly lady, Mrs. X, consulted a physician a month or so ago about a urethral caruncle with the view of having it removed. In questioning her relative to its duration and symptomatology the physician received from her the following story:

"Doctor, this little growth was accidentally discovered several years ago while in bathing. It has never given me the slightest pain or discomfort of any kind, does not cause any increased desire to urinate, and in fact I am never made aware of its presence by local symptoms. At first its presence did not worry me at all, but now it preys upon my mind because I am afraid it will become cancerous. I have had one experience of a similar nature in the family already. I have read in one of the circulars on cancer that moles and warts which were constantly irritated were apt to become cancerous. Soon afterward I learned that my sister, who is just older than I, had a mole in the groin which was giving her a good deal of trouble. She had a hernia and the mole was in such position that it was being constantly irritated by the truss which she wore. It began to get a little larger, and became ulcerated, and she began using salves of various kinds to relieve it. They did no good, and I advised her to stop using them and to have the mole removed. She refused to do this, so I then tried to get her to leave off the truss, so that the cause of the irritation would be removed. She could not leave off the truss without a good deal of discomfort, so she consulted a physician about the condition. He prescribed an antiseptic powder for the mole, but did not advise its removal. The powder did not relieve the condition so she was forced to leave off the truss for a week; soon after dispensing with the truss the hernia became strangulated and a physician was summoned. When he examined the hernia he found that the mole had become cancerous, was as large as a hen's egg and that hope of its complete removal was passed.

"My sister is now taking X-ray treatment for a cancer which could certainly have been prevented had she taken my advice in the first place. Therefore I wish to have this little growth of mine removed before it becomes a cancer."

This woman showed an unusual amount of common sense and a little knowledge of the cancer problem, and used them as the basis for sound reasoning and excellent advice, practicing what she preached.

There are many physicians with a great deal more technical knowledge, but a great deal less common sense, who are failing to grasp the significance of precancerous lesions and therefore failing to give the kind of advice so necessary to the reduction of the enormous yearly cancer mortality. This incident, an authentic one in its every detail,

is a very striking indication of what can be accomplished by a little instruction to the laity concerning the cancer problem. Every practicing physician should feel it his duty to familiarize himself with the principles of cancer prevention, and to become a teaching center in his community, imparting these essential facts to his patients.

Reviews from Current Literature

CANCER OF THE UTERUS

Watkins, T. J.: Prophylaxis of Uterine Cancer, Surg., Gyne. and Obst., 1916, Vol. XXII, p. 442.

This paper deals with probable or possible means of prevention of cancer of the uterus.

From the meager knowledge which we have of cancer, it must be inferred that the irritation and circulatory disturbances resulting from traumatisms can be the only possible contributing factors in the development of cancer of the cervix, and that traumatisms of the cervix are not frequently a contributing cause of cancer.

An erosion of the cervix should receive attention. They are most important as points of focal infection, but may be etiologic factors in cancers. The more extensive ones, with deep lacerations, extensive erosions and glandular degeneration, require operative treatment.

Hemorrhage, occurring after the menopause has been established for some time, should as a rule indicate hysterectomy. If cancer is not found, the operation is justified as a prophylactic measure. Fewer mistakes in diagnosis are made by considering all of this group cancer than by the use of other means for diagnosis in individual cases. This has been the author's practice for some years and the results have been highly satisfactory.

Incisions into and curetting of cancers should be usually avoided.

Morris H. Richardson strongly advocates the removal of all tumors as a prophylaxis of cancer. This principle of treatment, the author believes, should apply to uterine tumors. All uterine tumors should be removed as a prophylaxis of cancer, irrespective of other indications. G. R. H.

CANCER OF THE UTERUS

Peterson, Reuben: The Extended Operation for Carcinoma of the Uterus. Surg., Gyne. and Obst., Vol. XXIII, 1916, p. 237.

This paper, read at the American Gynecological Association in May, 1916, is supplementary to Peterson's earlier paper before the same society in 1912. He draws the following conclusions:

Further experience with the radical abdominal operation for cancer of the uterus confirms the belief that it is an exceedingly dangerous procedure and will always be attended by a high primary mortality.

Even if the percentage of operability of cases of cancer of the uterus markedly increases in this country and elsewhere there will always be border-line cases attended by a high primary mortality.

This is true because it is not always possible even with the greatest care in examination of the patient prior to operation to estimate the extent of the disease.

Errors in judgment mean death from shock if the disease be too far advanced or failure to complete the radical removal of the cancerous uterus.

However, in spite of a high primary mortality it is the only procedure, with the possible exception of the extended vaginal operation, which holds out any reasonable promise of a permanent cure.

Primary and end-results of the radical operation for cancer of the uterus must be considered together in order to judge of the good accomplished in a given series of cases.

Unless the operation be radical the end-results will be poor and if they be radical the primary mortality must be high.

If the end-results be poor the burden of the proof is upon the radical abdominal op-

erator to show why he did not choose a much safer palliative procedure.

Since 1912 experience with 14 ordinary panhysterectomies for cancer of the fundus shows worse primary and end-results than 11 cases previously reported where radical removal was performed.

This showing and the results following removal of carcinoma of the fundus by various methods in the Wertheim clinic, as reported by Weibel, lead to the conclusion that because carcinoma of the fundus is more easily cured than when the cervix is involved, we are not justified in thinking it can be treated any less radically than carcinoma of the cervix.

The primary mortality in 59 cases of cancer of the cervix and fundus treated by radical abdominal operation was 25.4 per cent.

The extent of the involvement in the cancer of the uterus can only be determined definitely after the abdomen has been opened. If the parametria are not too much involved and the condition of the patient's kidneys, heart and blood-vessels warrant a prolonged and depressing procedure it is justifiable to attempt the radical operation.

During the past four years 124 cases of cancer of the uterus have been seen in the university and private clinics. The disease was so far advanced in 36 cases that operation was refused or nothing was done. The cautery method was tried in 58 cases and proved valueless except as a palliative procedure.

In spite of attempts to educate the public regarding cancer, the cases of cancer of the uterus seen during the past four years were more advanced than has formerly been the case.

The end-results in 51 patients operated upon five or more years ago were most gratifying, combining fundus and cervix cases; 27 of the 51 patients were alive and well after five years or 56.2 per cent of all cases operated upon, while 69.2 per cent of all those surviving the operations were alive after five years.

Of 40 cases of cancer of the cervix operated upon, five years or more ago, 18 of those surviving the operation are alive and well today. Thus 47.3 per cent of the total number remain cured after five years while 62 per cent of those surviving the operation remain cured.

These percentages were obtained by Wertheim's formula where patients dying from intercurrent disease or those lost track of are subtracted from the total number of operative cases or from the number surviving.

The length of time elapsed since the operations upon the 18 patients who are alive and well vary from five up to thirteen years. There is every reason to think that these patients are permanently cured, although one patient did have a recurrence and died between five or six years after the radical operation.

In spite of the high primary mortality the end-results in those surviving the operation encourage us to continue with the procedure in suitable cases. G. R. H.

CHLOROMA

Gould, Everett W., and LeWald, Leon Theodore: Chloroma, a Report of Two Cases with the Roentgenologic Findings. Archives of Pediatrics, 1916, Vol. XXXIII, p. 417.

The name chloroma was given the disease on account of the green color of the tumors removed from the body. The nature of the coloring matter is unknown. It is a rare disease, the characteristic clinical features being exophthalmos, produced by retrobulbar lymphoma; swellings of the temporal and occipital regions; enlargement of spleen and lymphatic glands throughout the body; severe and progressive anæmia causing weakness, fever and emaciation. The condition arises from a hyperphasia of the parent cells of the leucocytes causing neoplasm-like formation in almost all the tissues of the body. It is a disease largely confined to children and especially to males. The associated anæmia depends not upon any toxic condition but upon a deficient

production of red cells. In most of the reported cases there is a characteristic leukemic blood picture at one time or another. Till recently this condition was looked upon as a lymphoma and referred to as green cancer. Histological observations show that it does not belong to the sarcoma group of neoplasms but should more properly be classified with the leukemias, differing from other forms of leukemia in its marked neoplastic character and the formation of green infiltrations and metastases. The authors submit a lengthy report of two cases. J. D. L.

SARCOMA OF THE KIDNEY

Friedlander, Alfred: Sarcoma of the Kidney. Treated by the Roentgen Ray. Am. Journal Diseases of Children, 1916, Vol. XII, p. 328.

It is generally accepted that the only hope in cases of sarcoma of the kidney in childhood lies in early nephrectomy. Unquestionably this should be done in those cases where there is held out any prospect of success, notwithstanding the mortality under surgical procedure is very high. If nephrectomy is contraindicated in any case of kidney sarcoma the Roentgen ray should be given a thorough trial. The author reports a case of advanced sarcoma of the kidney treated by the Roentgen ray which terminated fatally; and in view of this termination he deems it worth while to put on record this failure. The pathological findings in the case reported showed a marked degenerative process in the affected kidney and there were indications that the Roentgen ray treatments were at least partially the cause of the retrogression.

J. D. L.

NEW AND NONOFFICIAL REMEDIES.

ARBUTIN-ABBOTT.—A non-proprietary brand complying with the standards for Arbutin N.N.R. The Abbott Laboratories, Chicago. (*Jour. A. M. A.*, August 19, 1916, p. 586.)

AMPULES MERCURIC SALICYLATE-SQUIBB, 0.065.—Each ampule contains 0.065 gm. mercuric salicylate, N.N.R., in 1 c.c. of sterile suspension. E. R. Squibb & Sons, New York.

AMPULES MERCURY IODIDE (RED) 1 PER CENT, IN OIL-SQUIBB.—Each ampule contains 1 c.c. of a solution of red mercuric iodide and anesthesin, each 0.01 gm., in a neutral fatty oil. E. R. Squibb & Sons, New York. (*Jour. A. M. A.*, August 19, 1916, p. 586.)

AMPOULES QUININE DIHYDROCHLORIDE-SQUIBB, 1 GM.—Each ampule contains 1 gm. quinine dihydrochloride, N.N.R., in 2 c.c. of sterile solution. E. R. Squibb & Sons, New York.

AMPULES QUININE DIHYDROCHLORIDE-SQUIBB, 0.5 GM.—Each ampule contains 0.5 gm. quinine dihydrochloride, N.N.R., in 2 c.c. of sterile solution. E. R. Squibb & Sons, New York.

AMPULES QUININE DIHYDROCHLORIDE-SQUIBB, 0.25 GM.—Each ampule contains 0.25 gm. quinine dihydrochloride, N.N.R., in 2 c.c. of sterile solution. E. R. Squibb & Sons, New York.

AMPOULES QUININE AND UREA HYDROCHLORIDE-SQUIBBS, 1 GM.—Each ampule contains 1 gm. quinine dihydrochloride, N.N.R., in 2 c.c. of sterile solution. E. R. Squibb & Sons, New York.

AMPOULES QUININE AND UREA HYDROCHLORIDE-SUIBB, 0.5 GM.—Each ampule contains 0.5 gm. quinine and urea hydrochloride, N.N.R., in 2 c.c of sterile solution. E. R. Squibb & Sons, New York.

AMPOULES QUININE AND UREA HYDROCHLORIDE-SQUIBB, 0.25 GM.—Each ampule contains 0.25 gm. quinine and urea hydrochloride, N.N.R., in 2 c.c. of sterile solution. E. R. Squibb & Sons, New York.

AMPOULES QUININE AND UREA HYDROCHLORIDE-SQUIBB, 1 PER CENT.—Each ampule contains 5 c.c. of a sterile 1 per cent solution of quinine and urea hydrochloride, N.N.R. E. R. Squibb & Sons, New York.

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sodium cacodylate, N.N.R. E. R. Squibb & Sons, New York.

AMPOULES SODIUM CACODYLATE-SQUIBB, 0.05 GM.—Each ampule contains 0.05 gm. sodium cacodylate, N.N.R. E. R. Squibb & Sons, New York (*Jour. A. M. A.*, August 5, 1916, p. 437.)

BRAIN LIPOID.—IMPURE KEPHALIN.—This is an ether extract of the brain of the ox or other mammal, prepared according to the method of Howell and Hirschfelder. It has the properties of thromboplastic substance described above. It may be applied direct to the tissues or on sponges or pledgets, or it may be used in the form of an emulsion with sodium chlorid solution.

FIBRIN FERMENTS AND THROMBOPLASTIC SUBSTANCES (KEPHALIN).—The clotting of blood has been shown to be due to the action of the fibrin ferment on the fibrinogen of the blood. The fibrin ferment (thrombin) exists in the blood in the form of prothrombin which is converted into thrombin by the action of calcium and thromboplastic substance (thromboplastin). Kephalin, prepared from the brain, has the properties of thromboplastin. Preparations containing thromboplastin are said to be useful, when applied locally, in the treatment of hemorrhages, especially hemorrhages from oozing surfaces, scar tissue and nosebleeds. The intravenous use of thromboplastin in certain conditions has also been proposed.

RADIUM BROMIDE, SCHLESINGER RADIUM CO.—It complies with the standards of N.N.R. and is sold on the basis of its radium content. Schlesinger Radium Co., Denver, Colo.

Publisher's Notes

HALF A CENTURY'S PROGRESS

October, 1916, points an epoch in the history of Parke, Davis & Co. The house was founded in 1866—just fifty years ago this month—largely upon the optimism of three or four determined men, backed by a capital that would seem insignificant today. There was nothing in its unpretentious origin to foretell the success of after-years. And by success we mean not merely material prosperity, but also that broader and more enduring success that is based upon goodwill and confidence.

Manufacturing pharmacy was then a crude, imperfect art. Bacteriology, pharmacology and biological pharmacy were as yet unborn. There were no curative sera or vaccines in those days. Prophylaxis was in its infancy. Standardization was unknown.

Fifty years have wrought marvelous changes in means and methods for the treatment of human ills. The materia medica has been amplified beyond the dreams of the earlier investigators. Knowledge of pathology has immensely broadened. The empiricism of the past has given way to rational therapeutics, and medicine is taking its rightful place among the sciences.

In all these forward movements Parke, Davis & Co. have had some part—notably as discoverers of new vegetable drugs, as inventors of new chemical compounds, as pathfinders and producers in the field of biological manufacture, as investigators in original research, as pioneers in both chemical and physiological standardization.

The past half-century, as we have intimated, has been remarkable in its contributions to the newer materia medica. What will the next fifty years bring forward? Time alone can write the answer. Ours is a progressive age. The science of medicine has not reached its highest development. The physician's armamentarium will be further enlarged and fortified. New remedial agents will come into being. Many existing products will be improved. And with the fulfillment of these conditions, Parke, Davis & Co. (if we may judge the future by the past) are certain to be identified.